

REMARKS

Applicants respectfully request entry of the remarks submitted herein. Claims 1-16 and 20 are currently pending. Reconsideration of the pending application is respectfully requested.

The 35 U.S.C. §103 Rejections

Claims 1-16 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Idaszak (US Patent No. 4,021,927) in view of Vezzani (EP 0710670). According to the Examiner, the '927 patent discloses the claimed methods with the exception of the cylindrical-body reactor having a plurality of blades that convey the starch from an inlet to an outlet. The Examiner asserted, however, that the '670 application discloses such a cylindrical reactor with a bladed rotor to convey the starch from an inlet to an outlet. According to the Examiner, it would have been obvious to combine the '927 patent with the '670 application to arrive at the claimed invention because "the agitation applied by a rotor within the reactor favors the completion of the modification reaction" (OA at page 3). This rejection is respectfully traversed.

As indicated in the Background of the present application, the methods and devices disclosed in both the '927 patent and the '670 application have a number of disadvantages. For example, the reactor disclosed in the '927 patent has separate agitation zones and reactor zones, which results in inefficient and non-homogeneous reaction of the starch (see paragraph [0008] of the present specification). In addition, the methods disclosed in the '670 application have a number of drawbacks including, for example, the manner in which the starch is reacted with the reagent. That is, the '670 application discloses using centrifugal force (i.e., using a cylindrical reactor having a rotor) to maintain mixing of the starch. Problematically, however, a speed that maintains mixing of the starch does not provide sufficient exposure to heat, but lowering the speed creates other issues. See paragraph [0006] of the present application.

The Examiner's comments on page 6 of the Office Action seem to imply that, simply by adding a cylindrical reactor and a rotor from the '670 application to the apparatus described in the '927 patent, one of ordinary skill would arrive at the claimed invention. This is simply not true. As discussed in the March 20, 2009 Response to Office Action, the claimed methods

provide a number of advantages over other methods used in the art. For example, the combined effect of the rotation of the integral rotating shaft with one or more blades *and* the counter-current flow of gas significantly increases the turbulence in the reactor, which causes an increase in the frequency with which the individual particles of the starch substrate come into contact with the heated reactor wall. The claimed methods ultimately lead to a more homogeneous reaction of the starch. Because the frequency with which the starch particles contact the heated reactor wall increases, the particle temperature rises quickly, which results in an accelerated rate of reaction and a reduction in reaction time. In addition, the counter-current flow of gas in combination with the rotation of the blades, which is not disclosed in the cited references, maintains homogenous mixing of the starch.

The Supreme Court stated, in *KSR Int'l Co. v. Teleflex Inc.* (127 S. Ct. 1727, 1741 (2007)), that “a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” The Supreme Court also stated that “rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” (*KSR* at 1727, quoting *In re Kahn*, 441 F.3d 997, 988 (Fed. Cir. 2006)) and urged that “this analysis should be made explicit” (*KSR* at 1742). Because simply combining the cylindrical reactor and rotor from the ‘670 application with the apparatus and methods from the ‘927 patent would not arrive at the claimed invention, the Examiner has not articulated a reason with rational underpinning as to why the claimed invention is obvious.

Based on the remarks set forth herein, Applicants submit that the Examiner has not demonstrated that the pending claims are obvious over the cited references, and Applicants respectfully request that the rejection of claims 1-16 and 20 under 35 U.S.C. §103(a) be withdrawn.

CONCLUSION

Applicants respectfully request allowance of claims 1-16 and 20. Please apply the fee for the enclosed Petition for Extension of Time and any other charges or credits to Deposit Account No. 06-1050.

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Respectfully submitted,

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